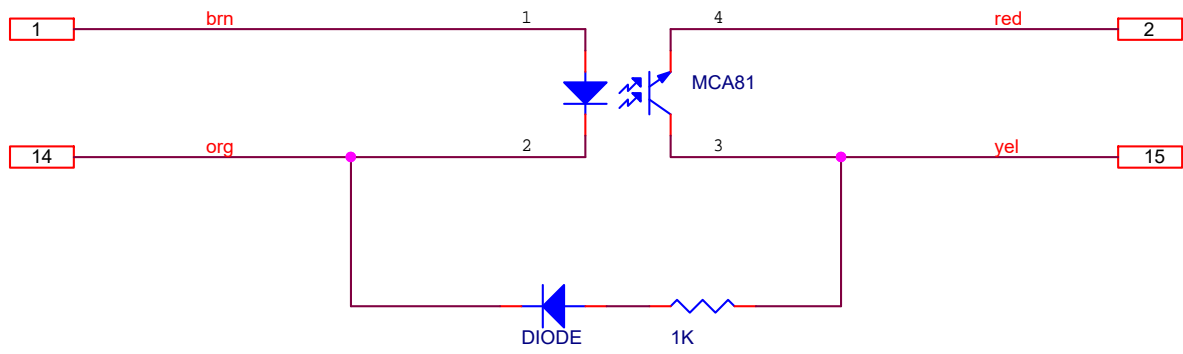
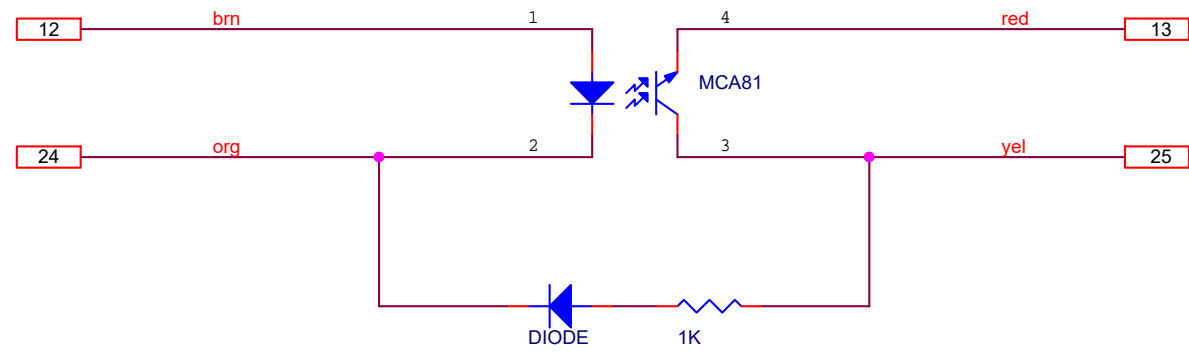


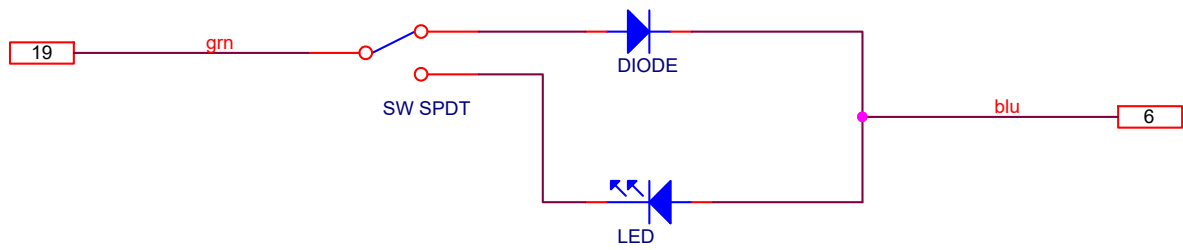
STOW LEFT (SOUTH, EAST)



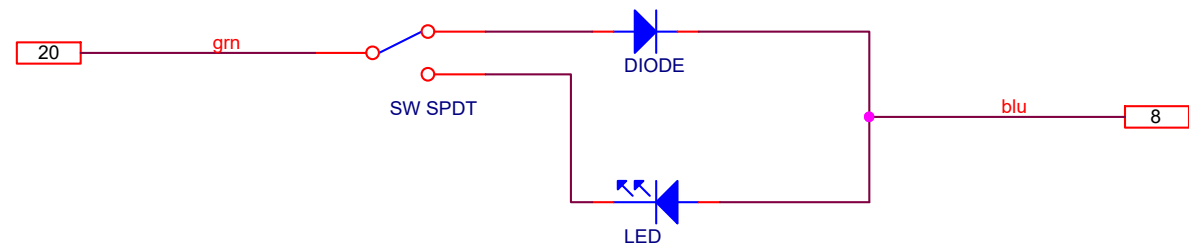
STOW RIGHT (NORTH, WEST)



FIRST LIMIT (SOUTH, EAST)



FIRST LIMIT (NORTH, WEST)



FINAL LIMIT (SOUTH, EAST)

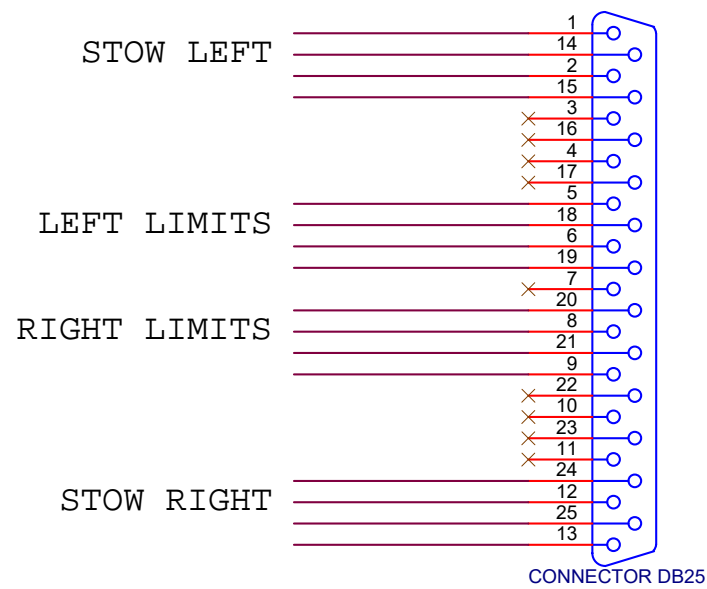


FINAL LIMIT (NORTH, WEST)



DEC CW = S

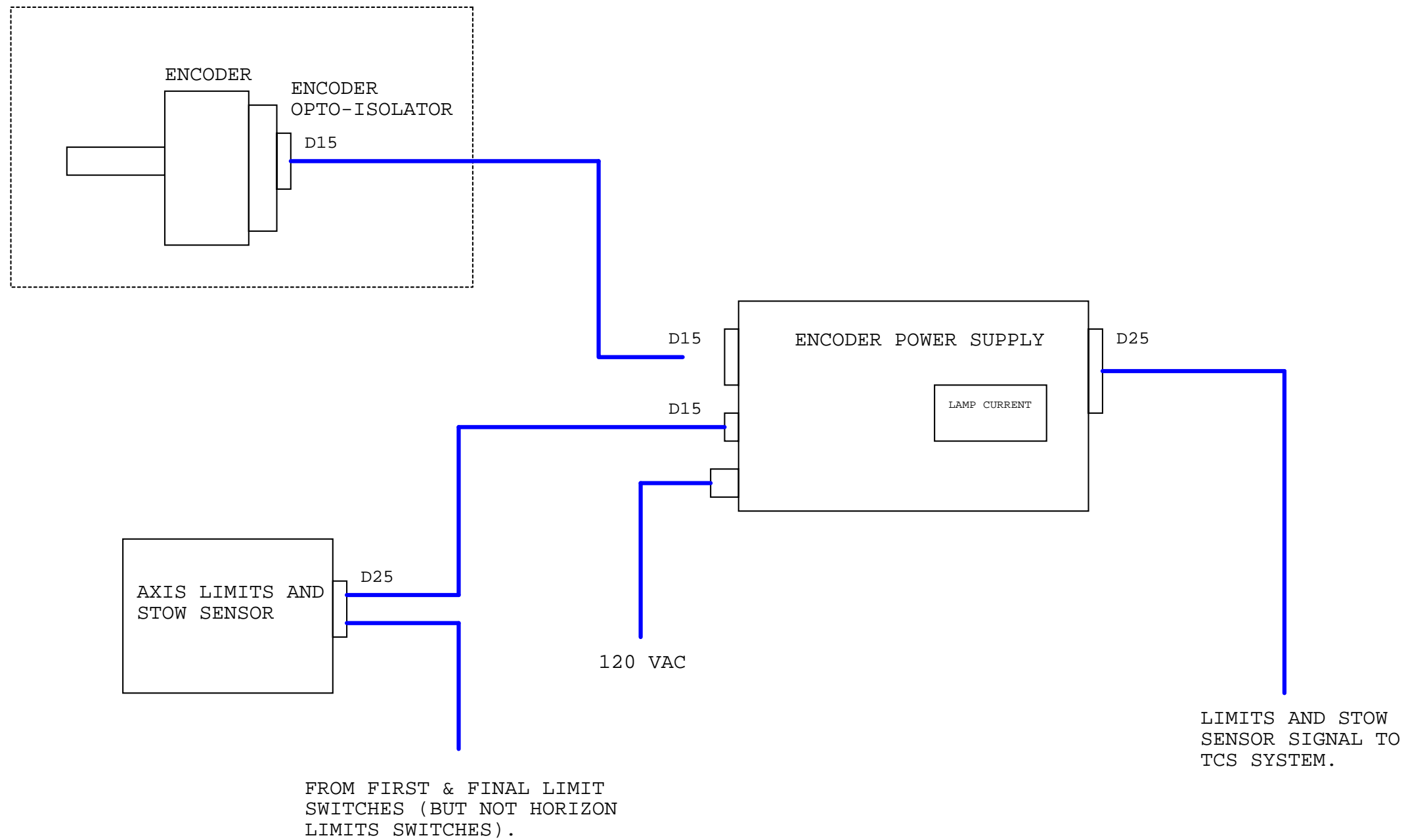
RA CW = SE



LOCATED IN A BOX NEAR EACH TELESCOPE AXIS NEXT TO THE WORM GEAR.

STEWART OBSERVATORY KITTE PEAK 90" TELESCOPE		
Title AXIS LIMITS BOX		
Size B	Document Number	Rev A
Date:	Wednesday, May 31, 2017	Sheet 1 of 5

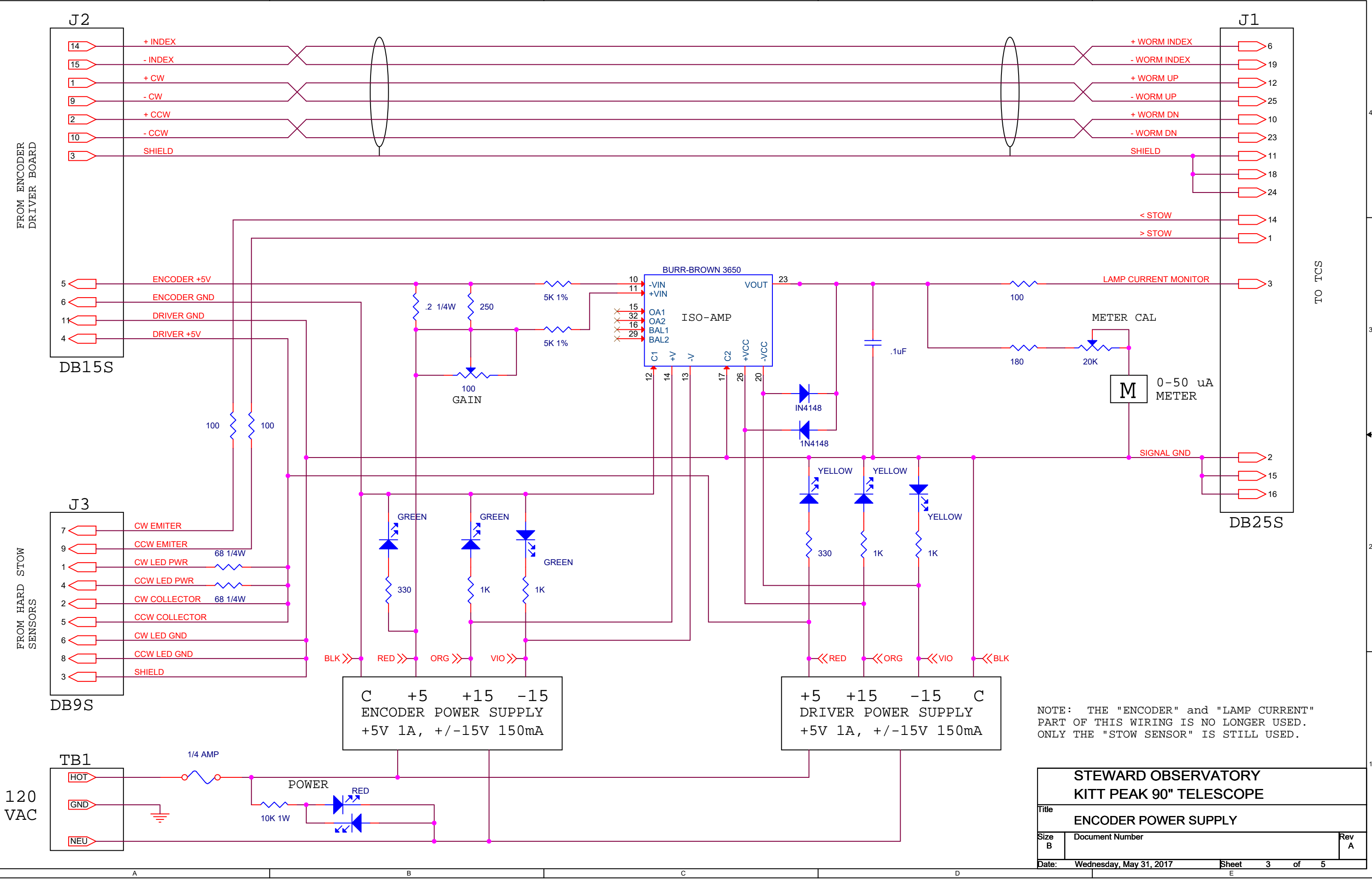
NOTE: THIS ENCODER IS NO LONGER PRESENT.  
IT WAS REPLACED BY AN INCREMENTAL ENCODER



ONE OF THESE LOCATED AT EACH AXIS  
AS OF 8/2010 THE BEI ENCODERS HAVE  
BEEN REPLACED BY MODERN QUADRATURE  
ENCODERS. THEY GET THEIR POWER  
DIRECTLY FROM THE ENCODER INTERFACE  
CARD IN THE TCS PC AND NOT FROM THIS  
SUPPLY.

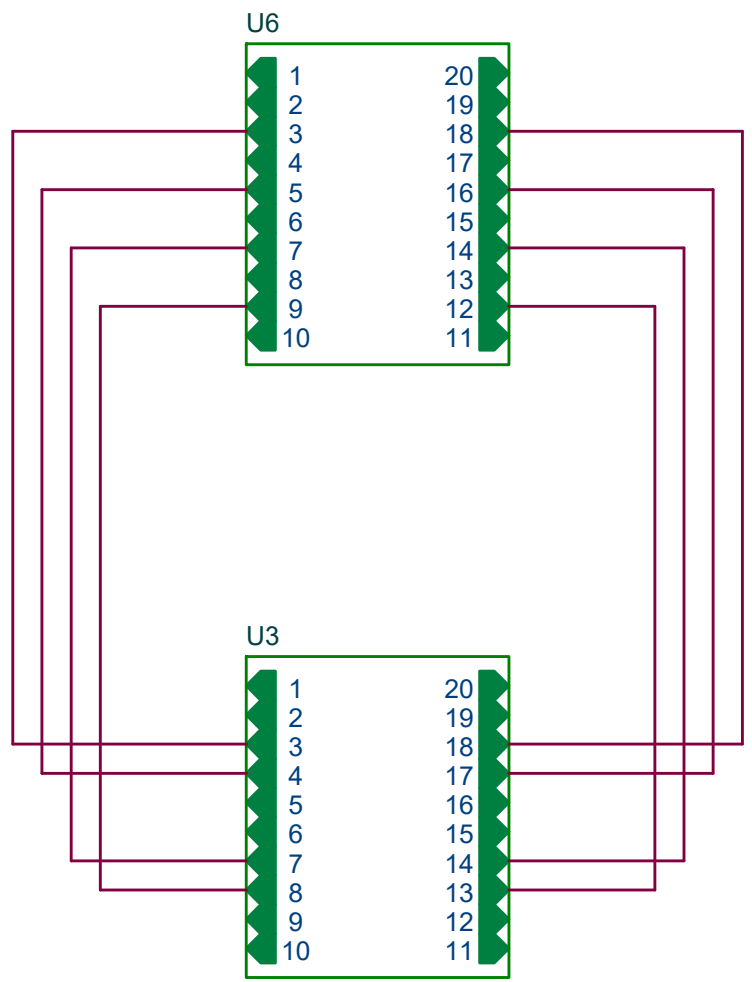
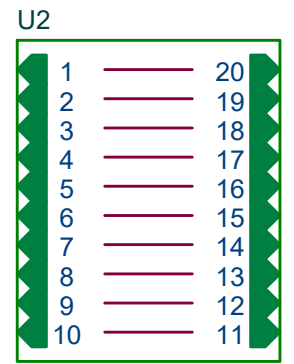
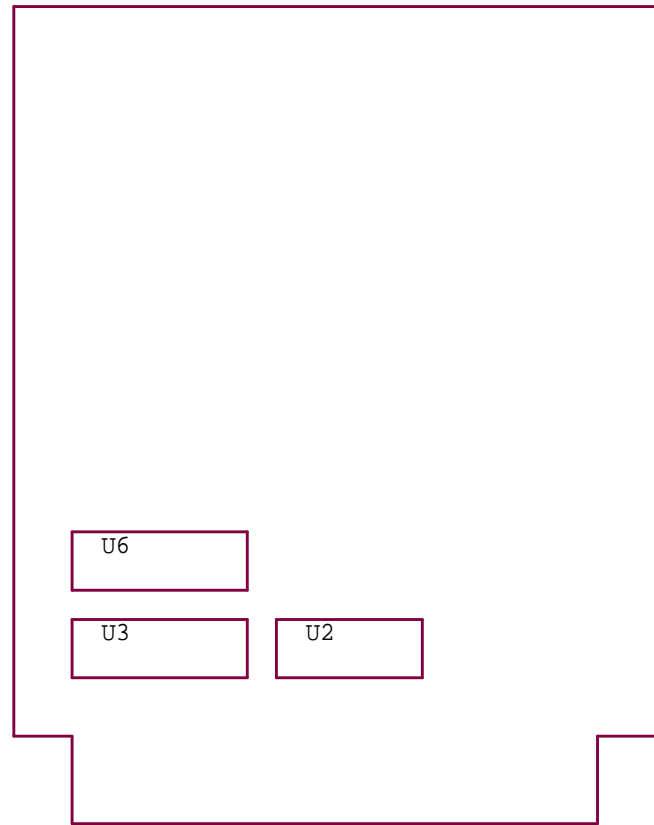
THE NEW ENCODERS DON'T USE LAMPS SO  
THE "LAMP CURRENT" SIGNALS ARE NO  
LONGER ACTIVE.

<b>STEWART OBSERVATORY KITT PEAK 90" TELESCOPE</b>		
Title		
AXIS LIMITS & STOW SENSOR		
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NOTE: THE "ENCODER" and "LAMP CURRENT" PART OF THIS WIRING IS NO LONGER USED. ONLY THE "STOW SENSOR" IS STILL USED.

<b>STEWART OBSERVATORY KITT PEAK 90" TELESCOPE</b>		
Title <b>ENCODER POWER SUPPLY</b>		
Size B	Document Number	Rev A
Date:	Wednesday, May 31, 2017	Sheet 3 of 5



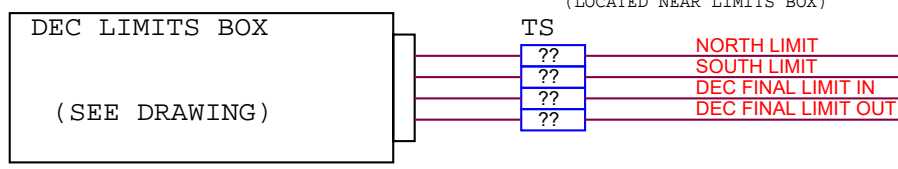
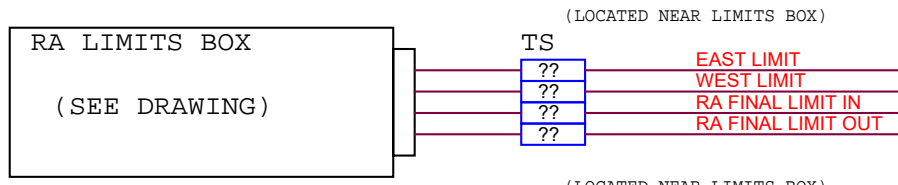
LIMITS CARD MODIFICATION

REQUIRED BEFORE INSTALLING THE LIMITS CARD  
 IN THE NEW MOUNT MICRO TRANSLATOR BOX

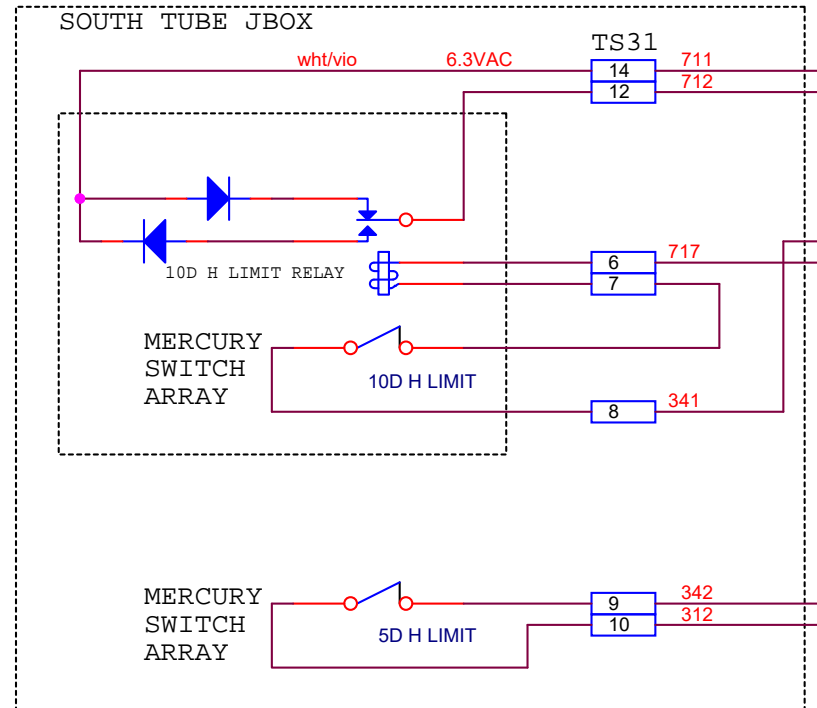
- 1). REMOVE CHIP IN U2 (74LS374) AND REPLACE WITH HEADER
- 2). REMOVE CHIPS IN U3 (74LS373) AND U6 (74LS688)
- 3). INSTALL JUMPER PLUG AS SHOWN

THE LIMITS CARD IS LOCATED IN  
 THE OPTOISOLATION CRATE UNDER  
 THE OPERATORS CONSOLE

<b>STEWART OBSERVATORY KITT PEAK 90" TELESCOPE</b>		
<b>Title</b> 90" LIMITS CARD MODIFICATION		
<b>Size</b> A	<b>Document Number</b>	<b>Rev</b> A
<b>Date:</b> Wednesday, May 31, 2017		<b>Sheet</b> 4 <b>of</b> 5



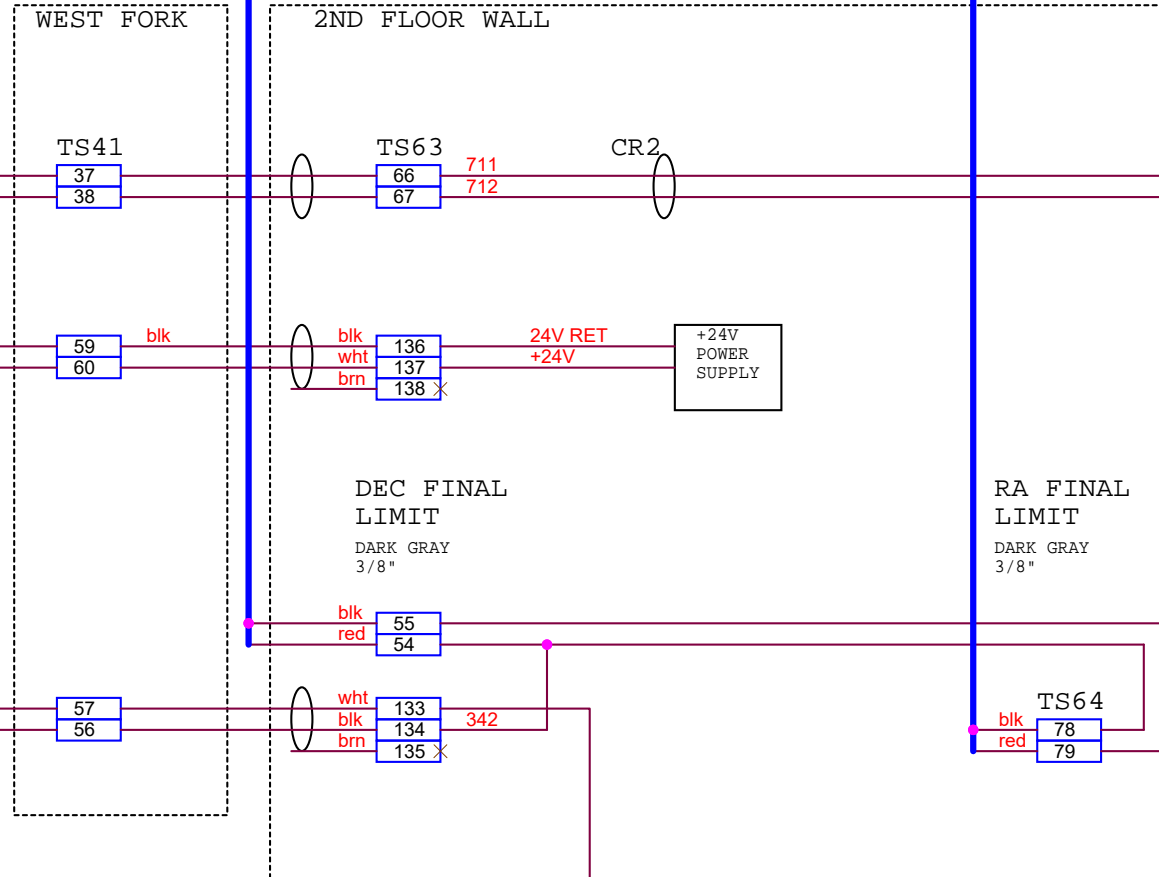
RA & DEC LIMIT SWITCHES ARE LOCATED IN BOXES NEAR THE AXIS ENCODERS. THEY ARE MECHANICAL SWITCHES.



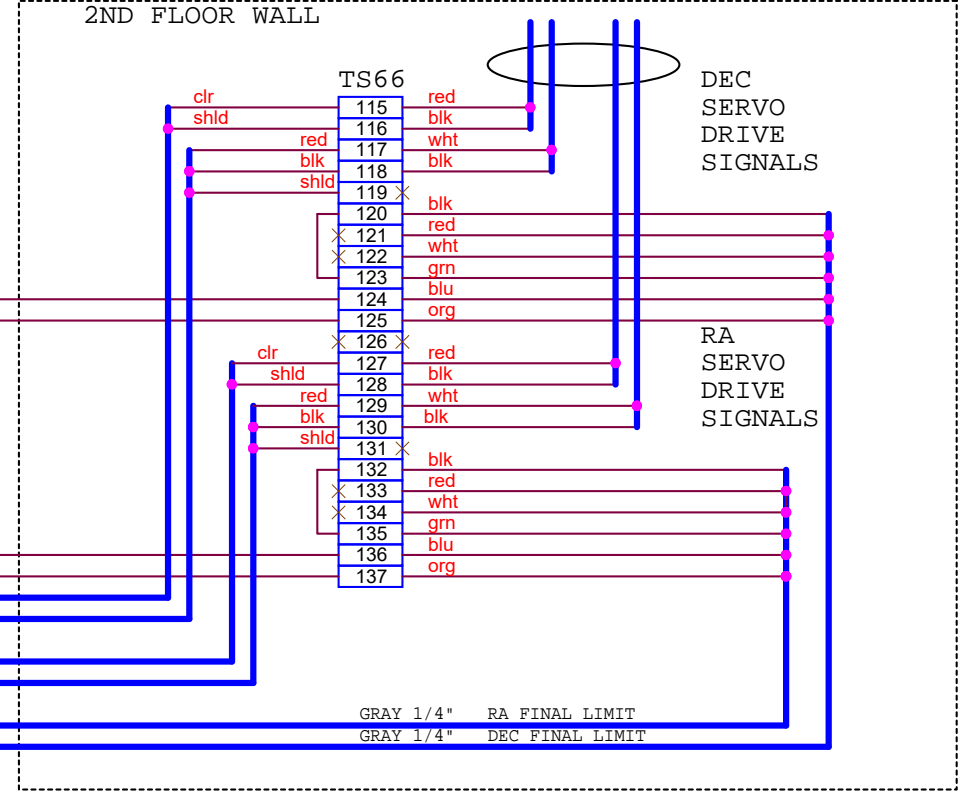
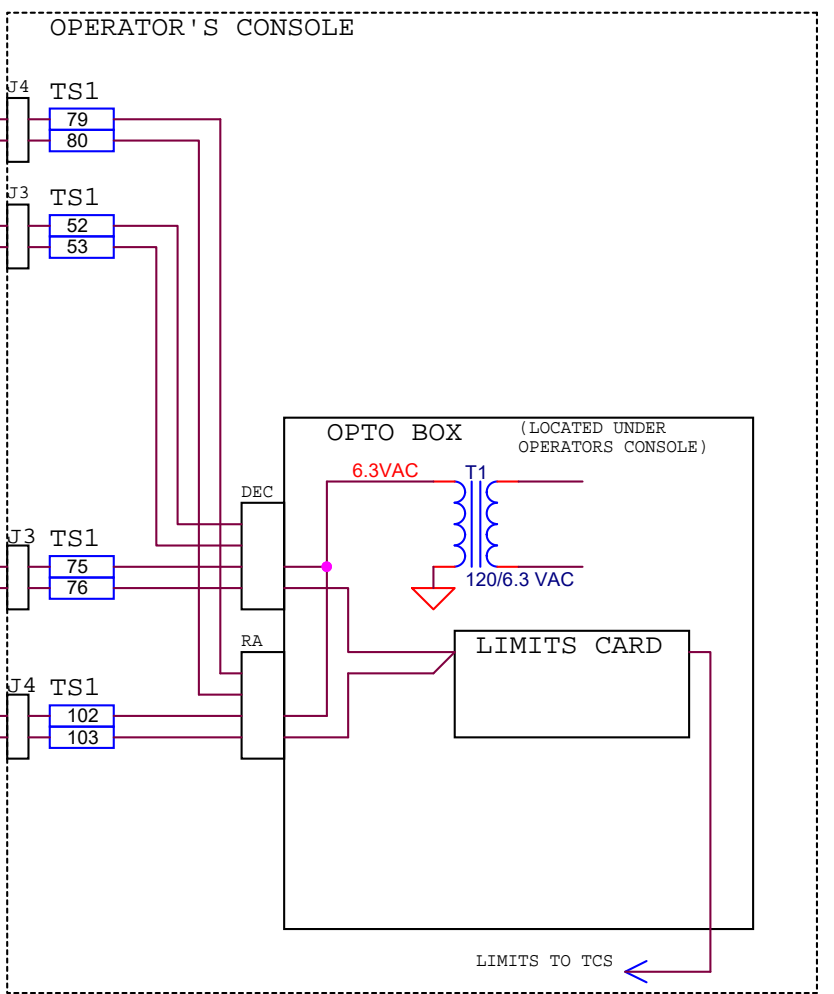
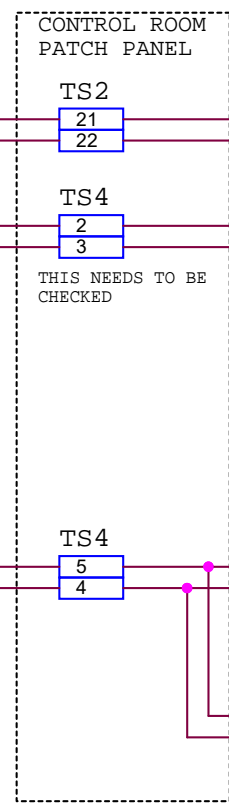
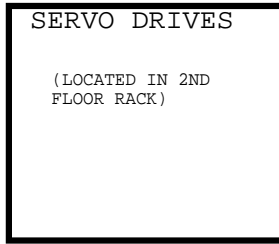
THE 5 DEGREE AND 10 DEGREE LIMIT SWITCHES ARE EACH MADE OF EIGHT SEALED MERCURY SWITCHES WIRED IN SERIES.

THEY ARE LOCATED IN THE SOUTH JUNCTION BOX ON THE TELESCOPE TUBE.

10 DEGREE LIMITS SIGNALS ARE A HALF WAVE RECTIFIED AC SIGNAL. THIS ALLOWS OPEN, CLOSED AND OPEN WIRE CONDITIONS TO BE DETECTED BY THE LIMITS CARD IN THE OPTO BOX.



5 DEGREE RA, DEC AND HORIZON LIMITS ARE WIRED IN SERIES. IF ANY LIMIT IS REACHED A RELAY IN THE SERVO BOX OPENS INTERRUPTING DRIVE TO THE SERVO MOTORS.



TO CONTROL ROOM

SERVO DRIVE FROM TCS & SERVO CURRENT TO CONSOLE METERS

GRAY 1/4" RA FINAL LIMIT  
GRAY 1/4" DEC FINAL LIMIT

STEWART OBSERVATORY KITT PEAK 90" TELESCOPE		
Title TELESCOPE MOTION LIMITS		
Size B	Document Number	Rev A
Date: Wednesday, May 31, 2017	Sheet 5 of 5	